



CY74FCT16374T  
CY74FCT162374T

**Output Drive Characteristics for CY74FCT16374T**

Parameter	Description	Test Conditions	Min.	Typ. <sup>[4]</sup>	Max.	Unit
V <sub>OH</sub>	Output HIGH Voltage	V <sub>CC</sub> = Min., I <sub>OH</sub> = -3 mA	2.5	3.5		V
		V <sub>CC</sub> = Min., I <sub>OH</sub> = -15 mA	2.4	3.5		V
		V <sub>CC</sub> = Min., I <sub>OH</sub> = -32 mA	2.0	3.0		V
V <sub>OL</sub>	Output LOW Voltage	V <sub>CC</sub> = Min., I <sub>OL</sub> = 64 mA		0.2	0.55	V

**Output Drive Characteristics for CY74FCT162374T**

Parameter	Description	Test Conditions	Min.	Typ. <sup>[4]</sup>	Max.	Unit
I <sub>ODL</sub>	Output LOW Current <sup>[6]</sup>	V <sub>CC</sub> = 5V, V <sub>IN</sub> = V <sub>OH</sub> or V <sub>OL</sub> , V <sub>OUT</sub> = 1.5V	60	115	150	mA
I <sub>ODH</sub>	Output HIGH Current <sup>[6]</sup>	V <sub>CC</sub> = 5V, V <sub>IN</sub> = V <sub>OH</sub> or V <sub>OL</sub> , V <sub>OUT</sub> = 1.5V	-60	-115	-150	mA
V <sub>OH</sub>	Output HIGH Voltage	V <sub>CC</sub> = Min., I <sub>OH</sub> = -24 mA	2.4	3.3		V
V <sub>OL</sub>	Output LOW Voltage	V <sub>CC</sub> = Min., I <sub>OL</sub> = 24 mA		0.3	0.55	V

**Capacitance<sup>[5]</sup> (T<sub>A</sub> = +25°C, f = 1.0 MHz)**

Parameter	Description	Test Conditions	Typ. <sup>[4]</sup>	Max.	Unit
C <sub>IN</sub>	Input Capacitance	V <sub>IN</sub> = 0V	4.5	6.0	pF
C <sub>OUT</sub>	Output Capacitance	V <sub>OUT</sub> = 0V	5.5	8.0	pF

**Power Supply Characteristics**

Parameter	Description	Test Conditions	Typ. <sup>[4]</sup>	Max.	Unit	
I <sub>CC</sub>	Quiescent Power Supply Current	V <sub>CC</sub> = Max., V <sub>IN</sub> ≤ 0.2V, V <sub>IN</sub> ≥ V <sub>CC</sub> - 0.2V	5	500	μA	
ΔI <sub>CC</sub>	Quiescent Power Supply Current (TTL inputs HIGH)	V <sub>CC</sub> = Max., V <sub>IN</sub> = 3.4V <sup>[7]</sup>	0.5	1.5	mA	
I <sub>CC(D)</sub>	Dynamic Power Supply Current <sup>[8]</sup>	V <sub>CC</sub> = Max., One Input Toggling, 50% Duty Cycle, Outputs Open, OE = GND	60	100	μA/MHz	
I <sub>C</sub>	Total Power Supply Current <sup>[9]</sup>	V <sub>CC</sub> = Max., f <sub>0</sub> = 10 MHz, f <sub>1</sub> = 5 MHz 50% Duty Cycle, Outputs Open, One Bit Toggling, OE = GND	V <sub>IN</sub> = V <sub>CC</sub> or V <sub>IN</sub> = GND	0.6	1.5	mA
		V <sub>CC</sub> = Max., f <sub>0</sub> = 10 MHz, f <sub>1</sub> = 2.5 MHz, 50% Duty Cycle, Outputs Open, Sixteen Bits Toggling, OE = GND	V <sub>IN</sub> = 3.4V or V <sub>IN</sub> = GND	1.1	3.0	mA
			V <sub>IN</sub> = V <sub>CC</sub> or V <sub>IN</sub> = GND	3.0	5.5 <sup>[10]</sup>	mA
			V <sub>IN</sub> = 3.4V or V <sub>IN</sub> = GND	7.5	19.0 <sup>[10]</sup>	mA

- Notes:**
- Per TTL driven input (V<sub>IN</sub> = 3.4V); all other inputs at V<sub>CC</sub> or GND.
  - This parameter is not directly testable, but is derived for use in Total Power Supply calculations.
  - I<sub>C</sub> = I<sub>QUIESCENT</sub> + I<sub>INPUTS</sub> + I<sub>DYNAMIC</sub>  
I<sub>C</sub> = I<sub>CC</sub> + ΔI<sub>CC</sub>(D<sub>H</sub>N<sub>I</sub>) + I<sub>CC(D)</sub>(f<sub>0</sub> + f<sub>1</sub>N<sub>I</sub>)  
I<sub>CC</sub> = Quiescent Current with CMOS input levels.  
ΔI<sub>CC</sub> = Power Supply Current for a TTL HIGH input (V<sub>IN</sub> = 3.4V)  
D<sub>H</sub> = Duty Cycle for TTL inputs HIGH
  - N<sub>I</sub> = Number of TTL inputs at D<sub>H</sub>
  - I<sub>CC(D)</sub> = Dynamic Current caused by an input transition pair (HLH or LHL)
  - f<sub>0</sub> = Clock frequency for registered devices, otherwise zero
  - f<sub>1</sub> = Input signal frequency
  - N<sub>I</sub> = Number of inputs changing at f<sub>1</sub>
  - All currents are in milliamperes and all frequencies are in megahertz.
  - Values for these conditions are examples of the I<sub>CC</sub> formula. These limits are guaranteed but not tested.



Switching Characteristics Over the Operating Range

Parameter	Description	CY74FCT16374T CY74FCT162374T		CY74FCT16374AT CY74FCT162374AT		CY74FCT16374CT CY74FCT162374CT		Unit	Fig. No. <sup>[12]</sup>
		Min. <sup>[11]</sup>	Max.	Min. <sup>[11]</sup>	Max.	Min. <sup>[11]</sup>	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay CLK to O	2.0	10.0	2.0	6.5	2.0	5.2	ns	1, 5
t <sub>2ZL</sub> t <sub>ZL</sub>	Output Enable Time	1.5	12.5	1.5	6.5	1.5	5.5	ns	1, 7, 8
t <sub>PHZ</sub> t <sub>PLZ</sub>	Output Disable Time	1.5	8.0	1.5	5.5	1.5	5.0	ns	1, 7, 8
t <sub>su</sub>	Set-Up Time HIGH or LOW, D to CLK	2.0		2.0		2.0		ns	4
t <sub>h</sub>	Hold Time HIGH or LOW, D to CLK	1.5		1.5		1.5		ns	4
t <sub>w</sub>	CLK Pulse Width HIGH or LOW	5.0		5.0		3.3		ns	5
t <sub>SK(O)</sub>	Output Skew <sup>[13]</sup>		0.5		0.5		0.5	ns	

Ordering Information CY74FCT16374

Speed (ns)	Ordering Code	Package Name	Package Type	Operating Range
5.2	CY74FCT16374CTPAC	Z48	48-Lead (240-Mil) TSSOP	Commercial
	CY74FCT16374CTPVC	O48	48-Lead (300-Mil) SSOP	
6.5	CY74FCT16374ATPAC	Z48	48-Lead (240-Mil) TSSOP	Commercial
	CY74FCT16374ATPVC	O48	48-Lead (300-Mil) SSOP	
10.0	CY74FCT16374TPAC	Z48	48-Lead (240-Mil) TSSOP	Commercial
	CY74FCT16374TPVC	O48	48-Lead (300-Mil) SSOP	

Ordering Information CY74FCT162374

Speed (ns)	Ordering Code	Package Name	Package Type	Operating Range
5.2	CY74FCT162374CTPAC	Z48	48-Lead (240-Mil) TSSOP	Commercial
	CY74FCT162374CTPVC	O48	48-Lead (300-Mil) SSOP	
6.5	CY74FCT162374ATPAC	Z48	48-Lead (240-Mil) TSSOP	Commercial
	CY74FCT162374ATPVC	O48	48-Lead (300-Mil) SSOP	
10.0	CY74FCT162374TPAC	Z48	48-Lead (240-Mil) TSSOP	Commercial
	CY74FCT162374TPVC	O48	48-Lead (300-Mil) SSOP	

Notes:

11. Minimum limits are guaranteed but not tested on Propagation Delays. 13. Skew between any two outputs of the same package switching in the same direction. This parameter is guaranteed by design.  
12. See "Parameter Measurement Information" in the General Information Section.

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